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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/728,035
Filing Date: December 03, 2003
Appellant(s): ATTAR ET AL.

Eric Ho
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 05/15/2009 appealing from the Office action mailed 09/15/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,405,045	CHOI et al.	6-2002
2004/0165529	LEE	8-2004
6,944,449	GANDHI et al.	9-2005
2002/0155852	BENDER	10-2002
2003/0125068	LEE et al.	7-2003
5,949,757	KATOH et al.	9-1999
6,442,398	PADOVANI et al.	8-2002
6,707,792	VOLFTSUN et al.	3-2004
5,697,054	ANDERSSON	12-1997
6,456,850	KIM et al.	9-2002
20020173316	JANG et al.	11-2002
2003/0003921	LAAKSO	2-2003
5,917,806	LIN et al.	6-1999
6,134,216	GEHI et al.	10-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1, 11, 13, 14, 21, 29, 31, 33, 39, 40, 43, and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. (US 6,405,045) in view of LEE (US 2004/0165529).

Regarding claims 1, 39, and 40, Choi discloses an apparatus (method and computer product) for communications, comprising:

means for communicating, from a base station, with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations, thus placing a load in the BTS);

means for monitoring a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the BTS includes a dynamic overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1));

means for detecting an overload as a result of one of the parameters crossing a threshold (col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the thresholds, see Fig. 3); and

means for implementing a plurality of control mechanisms to reduce the load on the base station, wherein the control mechanism used to reduce the load on the base station is selected based on a plurality of types and of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose selecting a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches selecting a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the

access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include selecting a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

Regarding claim 13, the combination of Choi and Lee disclose the apparatus of claim 1, in addition Choi discloses wherein one of the parameters comprises loading on processing resources used for communication with the communication devices (col. 3, lines 20-36; col. 4, lines 15-20; the systems periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio).

Regarding claim 14, the combination of Choi and Lee disclose the apparatus of claim 1, in addition Choi discloses wherein one of the parameters comprises receiver stability at the base station, base station transmission power requirements derived from feedback from communication devices, or loading on processing resources used for communication with the communication devices (col. 3, lines 20-36; col. 4, lines 15-20; the systems periodically monitors the BTS call occupancy rate).

Regarding claim 11, Choi discloses an apparatus for communications, comprising:

means for communicating, from a base station, with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2,

lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations, thus placing a load in the BTS);

means for monitoring a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the BTS includes a dynamic overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1));

means for detecting an overload as a result of one of the parameters crossing a threshold; means for detecting a second type of overload as a result of a second one of the parameters crossing a second threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the thresholds, for example, the system detects handoff call overload (i.e., first type) when the value Y1 exceeds the handoff call rejection point (i.e., first threshold) and the system detects an incoming and outgoing call overload (i.e., second type) when the value Y1 exceeds the incoming and outgoing call rejection point (i.e., second threshold)); and

means for implementing a plurality of control mechanisms to reduce the load on the base station, wherein the control mechanism used to reduce the load on the base station is selected based on a plurality of types and of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-

going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose selecting a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches selecting a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include selecting a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

Regarding claim 21, Choi discloses a base station configured to support communications with a plurality of communication devices, the communications placing a load on the base

station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations, thus placing a load in the BTS), the base station comprising:

a processor (col. 3, lines 20-36; i.e., overload control device) configured to monitor a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1)), and to detect an overload as a result of one of the parameters crossing a threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the threshold), and to reduce the load on the base station using a plurality of control mechanisms based on a plurality of types of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose using a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches using a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include using a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

Regarding claim 29, Choi discloses a base station configured to support communications with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations, thus placing a load in the BTS), the base station comprising:

a processor (col. 3, lines 20-36; i.e., overload control device) configured to monitor a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the overload control device that monitors a base control

processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1)), and to detect an overload as a result of one of the parameters crossing a threshold, wherein the processor is further configured to detect a second type overload as a result of a second one of the parameters crossing a second threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the threshold, for example, the system detects handoff call overload (i.e., first type) when the value Y1 exceeds the handoff call rejection point (i.e., first threshold) and the system detects an incoming and outgoing call overload (i.e., second type) when the value Y1 exceeds the incoming and outgoing call rejection point (i.e., second threshold)), and to reduce the load on the base station using a plurality of control mechanisms based on a plurality of types of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose using a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches using a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include using a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

Regarding claim 31, the combination of Choi and Lee disclose the base station of claim 21, in addition Choi discloses wherein the processor is further configured to support communications with the communication devices, and wherein one of the parameters is a function of loading on the processor (col. 3, lines 20-36; col. 4, lines 15-20; the system periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio).

Regarding claim 33, the combination of Choi and Lee disclose the base station of claim 21, in addition Choi discloses further comprising a receiver and transmitter, and wherein the

processor is further configured to support communications with the communication devices (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations (i.e., transmitter/recever)), and wherein one of the parameters is a function of receiver stability, transmission power requirements for the transmitter, or loading on the processor (col. 3, lines 20-36; col. 4, lines 15-20; the system periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio (i.e., loading in the processor)).

Regarding claims 43-44, the combination of Choi and Lee disclose the apparatus (and base station) of claims 1 and 21, in addition Lee discloses wherein means for detecting an overload as a result of one of the parameters crossing a threshold is for an entire period of time (paragraphs [0054]-[0056]; Lee teaches a control process that determines an overload condition by for example measuring a processor occupancy rate (i.e., parameter) and if the measured processor occupancy rate is maintained for a prescribed time above a reference value (i.e., crossing the threshold for an entire period of time), the control process judges that an access network is in an overload state). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify Choi to include the features of detecting overload as a result of one of the parameters crossing the threshold for an entire period of time, as suggested by Lee, in order to assure that the system is in fact overloaded and avoid premature actions for relieving the overload condition when the system is not really overloaded.

3. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, BENDER (US 2002/0155852 A1), and KIM et al. (US 6,456,850 B1).

Regarding claim 19, Choi discloses an apparatus (method and computer product) for communications, comprising:

means for communicating, from a base station, with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations, thus placing a load in the BTS);

means for monitoring a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the BTS includes a dynamic overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1));

means for detecting an overload as a result of one of the parameters crossing a threshold (col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the thresholds, see Fig. 3); and

means for implementing a plurality of control mechanisms to reduce the load on the base station, wherein the control mechanism used to reduce the load on the base station is selected based on a plurality of types and of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the

overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose selecting a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches selecting a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include selecting a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

But, the combination of Choi and Lee does not particularly disclose the control mechanisms comprising: means for determining idle users; means for bumping service to idle users; means for determining high data users; and means for bumping service to high data users.

However, these overload control mechanisms are well known in the art and Bender and Kim are evidence of the fact. Bender teaches a method for supervising connections with wireless access terminals and releasing the access terminals when they become idle for a predetermined period of time (p.0036, lines 1-11); and Kim teaches a method for preventing overload conditions in a communication system that performs a call load analysis to each of the individual subscribers, and the individuals subscribers whose contributions to the average call load are deemed significant (i.e., high data) are identified and removed from the system (abstract; col.8, lines 13-34). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination of Choi and Lee to include the overload control mechanisms comprising means for determining idle and high data users and means for bumping service to idle and high data users, as suggested by Bender and Kim, since such a modification will allow the system to maximize the RF resources for use and to alleviate an overload condition.

4. **Claims 6 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, GANDHI et al. (US 6,944,449), and GEHI et al. (US 6,134,216).

Regarding claim 6, Choi discloses an apparatus (method and computer product) for communications, comprising:

means for communicating, from a base station, with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations, thus placing a load in the BTS);

means for monitoring a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the BTS includes a dynamic overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1));

means for detecting an overload as a result of one of the parameters crossing a threshold (col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the thresholds, see Fig. 3); and

means for implementing a plurality of control mechanisms to reduce the load on the base station, wherein the control mechanism used to reduce the load on the base station is selected based on a plurality of types and of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose selecting a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches selecting a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include selecting a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

But, the combination of Choi and Lee does not particularly disclose wherein one of the parameters is a function of receiver stability at the base station and wherein the overload is detected as a result of a receiver stability estimate exceeding a threshold.

However, Gandhi teaches a base station monitoring the receiver stability and wherein overload is detected as a result of the receiver stability estimate exceeding a threshold (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (i.e., receiver stability parameter) that is comparing with a blocking threshold that represents a control overload benchmark and if the

first performance indicator exceeds the blocking threshold, the base station rejects new call arrivals because the system is overloaded). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein one of the parameters comprises receiver stability at the base station and wherein the overload is detected as a result of a receiver stability estimate exceeding a threshold, as suggested by Gandhi, since such a modification would allow the base station to facilitate meeting a desired level of signal quality or statistical reliability over a defined coverage area for the reverse link of currently active users.

But, the combination of Choi, Lee, and Gandhi does not particularly disclose detecting a first degree overload as a function of a measured parameter exceeding the threshold for a period of time and detecting a second degree overload as a function of a measured parameter exceeding the threshold for a second period of time longer than the first period of time.

However, Gehi teaches detecting a first degree overload as a function of a measured parameter exceeding the threshold for a period of time and detecting a second degree overload as a function of a measured parameter exceeding the threshold for a second period of time longer than the first period of time. (abstract; col. 2, lines 5-36; Gehi teaches a method of responding to overload in a real time system such as a telecommunication system, in where overload is measured through the use of a control parameter and the overload indication is reduced to one of a plurality of levels (i.e., degrees), the level corresponding to a longer term (i.e., second degree) more serious overload are based on control measurements over a longer period of time than the less serious short term (i.e., first degree) overload, and therefore the actions taken for relieving overloading are distinguished by the level of overload). Therefore, it would have been obvious to

a person having ordinary skill in the art at the time of the invention, to modify the combination to include detecting a first degree overload as a function of a measured parameter exceeding the threshold for a period of time and detecting a second degree overload as a function of a measured parameter exceeding the threshold for a second period of time longer than the first period of time, as suggested by Gehi, since such a modification would allow the system to distinguish the severity of the overload condition and the control actions to be performed according to the level of overload in the system.

Regarding claim 23, Choi discloses a base station configured to support communications with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations (i.e., transmitter/receiver), thus placing a load in the BTS), the base station comprising: a receiver; and

a processor (col. 3, lines 20-36; i.e., overload control device) configured to monitor a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1)), and to detect an overload as a result of one of the parameters crossing a threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the threshold), and to reduce the load on the base station using a plurality of control mechanisms based on a plurality

of types of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)).

But, Choi does not particularly disclose using a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches using a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include using a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so

that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

But, the combination of Choi and Lee does not particularly disclose wherein one of the parameters is a function of receiver stability at the base station and wherein the overload is detected as a result of a receiver stability estimate exceeding a threshold.

However, Gandhi teaches a base station monitoring the receiver stability and wherein overload is detected as a result of the receiver stability estimate exceeding a threshold (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (i.e., receiver stability parameter) that is comparing with a blocking threshold that represents a control overload benchmark and if the first performance indicator exceeds the blocking threshold, the base station rejects new call arrivals because the system is overloaded). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein one of the parameters comprises receiver stability at the base station and wherein the overload is detected as a result of a receiver stability estimate exceeding a threshold, as suggested by Gandhi, since such a modification would allow the base station to facilitate meeting a desired level of signal quality or statistical reliability over a defined coverage area for the reverse link of currently active users.

But, the combination of Choi, Lee, and Gandhi does not particularly disclose detecting a first degree overload as a function of a measured parameter exceeding the threshold for a period of time and detecting a second degree overload as a function of a measured parameter exceeding the threshold for a second period of time longer than the first period of time.

However, Gehi teaches detecting a first degree overload as a function of a measured parameter exceeding the threshold for a period of time and detecting a second degree overload as a function of a measured parameter exceeding the threshold for a second period of time longer than the first period of time. (abstract; col. 2, lines 5-36; Gehi teaches a method of responding to overload in a real time system such as a telecommunication system, in where overload is measured through the use of a control parameter and the overload indication is reduced to one of a plurality of levels (i.e., degrees), the level corresponding to a longer term (i.e., second degree) more serious overload are based on control measurements over a longer period of time than the less serious short term (i.e., first degree) overload, and therefore the actions taken for relieving overloading are distinguished by the level of overload). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination to include detecting a first degree overload as a function of a measured parameter exceeding the threshold for a period of time and detecting a second degree overload as a function of a measured parameter exceeding the threshold for a second period of time longer than the first period of time, as suggested by Gehi, since such a modification would allow the system to distinguish the severity of the overload condition and the control actions to be performed according to the level of overload in the system.

5. **Claim 32** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, and ANDERSSON (US 5,697,054).

Regarding claim 32, Choi discloses a base station configured to support communications with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include

means to transmit/receive information to/from mobile stations (i.e., transmitter/receiver), thus placing a load in the BTS), the base station comprising: a receiver; and

a processor (col. 3, lines 20-36; i.e., overload control device) configured to monitor a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1)), and to detect an overload as a result of one of the parameters crossing a threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the threshold), and to reduce the load on the base station using a plurality of control mechanisms based on a plurality of types of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)), wherein one of the parameters is function of loading on a processor (col. 3, lines 20-36; col. 4, lines 15-20; the systems periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio).

But, Choi does not particularly disclose using a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches using a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include using a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

But, the combination of Choi and Lee does not particularly teach the base station including a second processor. However, a base station comprising a second processor is well known in the art and Andersson is evidence of the fact. Andersson teaches a base station system comprising a plurality of processors as shown in figure 1 (i.e., RPD1, RPD2, …) that monitors the load in each of the processors and shares the load between processors for eliminating the risk of overload in the processors (abstract; col.1, lines 35-60). Therefore, it would have been obvious

to a person having ordinary skill in the art at the time of the invention, to modify the combination to include a second processor in the base station, as suggested by Andersson, since such a modification allows the base station to share the load of communications between a plurality of processors to maintain stability.

6. **Claim 34** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, and ANDERSSON, and JANG et al. (US 2002/0173316).

Regarding claim 34, Choi discloses a base station configured to support communications with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations (i.e., transmitter/receiver), thus placing a load in the BTS), the base station comprising: a receiver; and

a processor (col. 3, lines 20-36; i.e., overload control device) configured to monitor a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1)), and to detect an overload as a result of one of the parameters crossing a threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1) with the thresholds and detects the overload when the parameters exceeds the threshold), and to reduce the load on the base station using a plurality of control mechanisms based on a plurality of types of the overload on the base station; and wherein each type is associated with at least one

of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)), wherein one of the parameters is function of loading on a processor (col. 3, lines 20-36; col. 4, lines 15-20; the systems periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio).

But, Choi does not particularly disclose using a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches using a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include using a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so

that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

But, the combination of Choi and Lee does not particularly teach the base station including a second processor. However, a base station comprising a second processor is well known in the art and Andersson is evidence of the fact. Andersson teaches a base station system comprising a plurality of processors as shown in figure 1 (i.e., RPD1, RPD2, …) that monitors the load in each of the processors and shares the load between processors for eliminating the risk of overload in the processors (abstract; col.1, lines 35-60). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination to include a second processor in the base station, as suggested by Andersson, since such a modification allows the base station to share the load of communications between a plurality of processors to maintain stability.

Yet, the combination of Choi, Lee, and Andersson does not expressly disclose wherein the control mechanism used to control the load is also selected based on the type of application running in the base station.

However, this parameter is well known in the art to influence the decision of controlling the load in a communication system as taught by Jang. Jang teaches a method and system for limiting or controlling access in communication networks during overload conditions. Once the network (i.e., BSC or BS) is aware of the overload condition, it begins to analyze the condition to determine the proper course of action, and when it determines that access control should implemented, it then decides which type of application/call (i.e., voice, data, facsimile, etc.) to control. For example, if the overload condition is light to moderate, a decision might be to

control or limit access to all data services, but allow voice services to continue, in another situation, the network may limit access to all digital facsimiles services (p.0024-0026, and 0029-0030). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination to include the features of selecting a load control mechanism based on the type of application, as suggested by Jang, since such a modification would provide the wireless communication network to limit or control different types of application in order to reduce the overload conditions.

7. **Claim 37** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, ANDERSSON, GANDHI, and LAAKSO (US 2003/0003921 A1).

Regarding claim 37, Choi discloses a base station configured to support communications with a plurality of communication devices, the communications placing a load on the base station (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations (i.e., transmitter/receiver), thus placing a load in the BTS), the base station comprising: a receiver; and

a processor (col. 3, lines 20-36; i.e., overload control device) configured to monitor a plurality of parameters each relating to the load on the base station (Fig. 2; col. 3, lines 20-36; col. 3, line 59-col. 4, lines 1-21; the overload control device that monitors a base control processor (BCP) activity, BTS call resource occupancy rate, central control processor (CCP) activity, etc. (i.e., plurality of parameters/ value Y1)), and to detect an overload as a result of one of the parameters crossing a threshold (Fig. 3; col. 3, lines 59-64; col. 4, lines 15-67; the overload detect unit stores different threshold points that indicate different overload types, and when the overload control process is started compares the detected parameters (i.e., value Y1)

with the thresholds and detects the overload when the parameters exceeds the threshold), and to reduce the load on the base station using a plurality of control mechanisms based on a plurality of types of the overload on the base station; and wherein each type is associated with at least one of the parameters (col. 4, line 22-col.5, lines 1-12; the overload process unit can detect the overload in the handoff request call point, at the incoming or out-going call request points (i.e., overload types), in response when the process unit detects the overload in the handoff request call it rejects the allocation for all call requests, if the overload process unit detects an incoming and outgoing call overload, the incoming or out-going call is rejected, etc. (i.e., plurality of control mechanisms to reduce load)), wherein one of the parameters is function of loading on a processor (col. 3, lines 20-36; col. 4, lines 15-20; the systems periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio), and

a receiver, a transmitter (col. 1, lines 22-25, 38-43; col. 2, lines 1-5; the base transceiver station BTS include means to transmit/receive information to/from mobile stations (i.e., transmitter/receiver)), wherein one of the parameters is a function of loading on a processor (col. 3, lines 20-36; col. 4, lines 15-20; the system periodically monitors the base control processor BCP activity and the central control processor CCP activity ratio (i.e., processor)).

But, Choi does not particularly disclose using a control mechanism to reduce the load on the base station based on a degree of the overload.

However, Lee teaches using a control mechanism to reduce the load on the base station based on a degree of the overload (Lee teaches an overload control method that includes judging whether an access network (i.e., base station) is overloaded and restricting an originating call and a termination call (i.e., plurality of control mechanisms) according to a degree of the overload so

that the overload control method can effectively cope with the overload situation (see abstract; p.0033-0036). The overload control processes periodically checks whether the access network is overloaded, and when is indeed overloaded, a call (i.e., terminating call or originating call) is discriminately restricted according to a degree of overload (p.0051-0056; Fig. 6)). Therefore, it would have been obvious to a person having ordinary skill in the at the time of the invention, to modify Choi to include using a control mechanism to reduce the load on the base station based on a degree of the overload, as suggested by Lee, since such a modification would allow the system to discriminately perform an overload control according to a degree of the overload so that the overload control method can effectively cope with the overload situation, and to effectively manage the resources at the base station (abstract; p.0033-0034 and p.0083).

But, the combination of Choi and Lee does not particularly teach the base station including a second processor. However, a base station comprising a second processor is well known in the art and Andersson is evidence of the fact. Andersson teaches a base station system comprising a plurality of processors as shown in figure 1 (i.e., RPD1, RPD2, …) that monitors the load in each of the processors and shares the load between processors for eliminating the risk of overload in the processors (abstract; col.1, lines 35-60). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination to include a second processor in the base station, as suggested by Andersson, since such a modification allows the base station to share the load of communications between a plurality of processors to maintain stability.

In, addition the combination of Choi, Lee, and Andersson does not particularly disclose wherein one of the parameters is a function of receiver stability, and a second one of the parameters is a function of transmission power requirements.

However, Gandhi teaches a base station monitoring the receiver stability (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (i.e., receiver stability parameter) that is comparing with a blocking threshold that represents a control overload benchmark and if the first performance indicator exceeds the blocking threshold, the base station rejects new call arrivals because the system is overloaded). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein one of the parameters comprises receiver stability at the base station, as suggested by Gandhi, since such a modification would allow the base station to facilitate meeting a desired level of signal quality or statistical reliability over a defined coverage area for the reverse link of currently active users.

In addition, Laakso teaches a base station monitoring transmission power requirements for a transmitter (abstract, lines 1-11; paragraphs [0071],[0074]). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of monitoring the transmission power requirements for a base station transmitter, as suggested by Laakso, since such a modification would allow the base station to estimate and control the state of congestion of a communication system due to wireless communication devices.

8. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI in views of LEE, GANDHI, ANDERSSON, LAAKSO, and PADOVANI (US 6,442,398).

Regarding claim 38, the combination of Gandhi, Andersson, Lee, Lin, and Laakso disclose the base station of claim 37, but the combination does not particularly disclose monitoring a fourth parameter comprising a function of the number of communication devices in communication with the base station.

However, Padovani teaches that a simple means for determining reverse link loading is to simply count the number of active users in the base station (col.4, lines 32-34). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of monitoring a fourth parameter comprising a number of the communication devices in communication with the base station, as suggested by Padovani, since such a modification would provide the base station with another parameters for determining a reverse link loading.

9. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE and PADOVANI.

Regarding claim 10, the combination of Choi and Lee disclose the apparatus of claim 1, but the combination does not particularly disclose wherein one of the parameters comprises a number of the communication devices in communication with the base station. However, Padovani teaches that a simple means for determining reverse link loading is to simply count the number of active users in the base station (col.4, lines 32-34). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the

combination to include a parameter comprising of monitoring a number of the communication devices in communication with the base station, as suggested by Padovani, since such a modification would provide the base station with another parameters for determining a reverse link loading.

10. **Claims 2, 3, 22, and 45-46** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, and GANDHI et al.

Regarding claims 2-3; the combination of Choi and Lee disclose the apparatus of claim 1, but the combination does not particularly disclose wherein one of the parameters comprises receiver stability at the base station, and the overload is detected as a result of a receiver stability estimate exceeding a threshold, wherein the receiver stability estimate comprises a rise over thermal.

However, Gandhi teaches a base station monitoring the receiver stability and wherein overload is detected as a result of the receiver stability estimate exceeding a threshold (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (i.e., receiver stability parameter) that is comparing with a blocking threshold that represents a control overload benchmark and if the first performance indicator exceeds the blocking threshold, the base station rejects new call arrivals because the system is overloaded). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein one of the parameters comprises receiver stability at the base station and wherein the overload is detected as a result of a receiver stability estimate exceeding a threshold, and wherein the receiver stability estimate comprises rise over thermal, as suggested by Gandhi, since such a

modification would allow the base station to facilitate meeting a desired level of signal quality or statistical reliability over a defined coverage area for the reverse link of currently active users.

Regarding claim 22; the combination of Choi and Lee disclose the base station of claim 21, further comprising a receiver, but the combination does not particularly disclose wherein one of the parameters comprises receiver stability at the base station, and the overload is detected as a result of a receiver stability estimate exceeding a threshold for a period of time.

However, Gandhi teaches a base station monitoring the receiver stability and wherein overload is detected as a result of the receiver stability estimate exceeding a threshold (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (i.e., receiver stability parameter) that is comparing with a blocking threshold that represents a control overload benchmark and if the first performance indicator exceeds the blocking threshold, the base station rejects new call arrivals because the system is overloaded). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein one of the parameters comprises receiver stability at the base station and wherein the overload is detected as a result of a receiver stability estimate exceeding a threshold, as suggested by Gandhi, since such a modification would allow the base station to facilitate meeting a desired level of signal quality or statistical reliability over a defined coverage area for the reverse link of currently active users.

Regarding claims 45 and 46, the combination of Choi and Lee disclose the apparatus (and base station) of claims 1 and 21, but the combination does not particularly disclose wherein

the plurality of types comprises a type indicating high rise-over thermal condition or a type indicating lack of power.

However, Gandhi teaches a type of overload that indicates a high rise-over thermal condition (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (rise over thermal) that is compared with a blocking threshold that represents a control overload benchmark and if the first performance indicator exceeds the blocking threshold, exceeding the blocking threshold indicates that the system is overloaded and increased interference). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein a type of overload that indicates a high rise-over thermal condition, as suggested by Gandhi, since such a modification would allow the base station to facilitate meeting a desired level of signal quality for active users.

11. **Claims 4, 5, 24, and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, GANDHI et al. and LEE et al. (US 2003/0125068 A1), hereinafter LEE ‘068.

Regarding claim 4, the combination of Choi, Lee, and Gandhi disclose the apparatus of claim 3, but the combination does not particularly disclose further comprising means for generating power control commands for each of the communication devices, and adjusting the threshold as a function of the power control commands. However, Lee ‘068 discloses a method of performing power control in a mobile communication system, wherein the base station generates power control commands based on a power control threshold value for a first terminal and adjusted according to a communication environment (p.0012-0020; p.0029-0037).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to incorporate means for generating power control commands for each of the communication devices and adjust a threshold as a function of the power control commands, as suggested by Lee ‘068, in order to reduce signal interference in the system.

Regarding claim 5, the combination of Choi, Lee, Gandhi, and Lee ‘068 disclose the apparatus of claim 4, in addition Lee ‘068 discloses further comprising means for monitoring the communications from each of the communication devices to detect errors, and wherein the adjustment of the threshold is further a function of the detected errors (p.0038-0039).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to incorporate means for monitoring the communication from the communication devices to detect errors and adjust the threshold as a

function of the detected errors, as suggested by Lee ‘068, in order to decrease for example the frame errors of voice data.

Regarding claim 24, the combination of Choi, Lee, and Gandhi disclose the base station of claim 22, but the combination does not particularly disclose wherein the processor is further configured to generate power control commands for each of the communication devices, and adjust the threshold as a function of the power control commands. However, Lee ‘068 discloses a method of performing power control in a mobile communication system, wherein the base station generates power control commands based on a power control threshold value for a first terminal and adjusted according to a communication environment (p.0012-0020; p.0029-0037).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to configure the processor to generate power control commands and adjust a threshold as a function of the power control command, as suggested by Lee ‘068, in order to reduce signal interference in the system and avoid degradation of the signal quality.

Regarding claim 25, the combination of Choi, Lee, Gandhi, and Lee ‘068 disclose the base station of claim 24, in addition Lee ‘068 discloses wherein the processor is further configured to monitor communications from the communication devices to detect errors, and wherein the adjustment of the threshold by the processor is further a function of the detected errors (p.0038-0039). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of monitoring the communication from the communication devices to detect errors and adjust the threshold as a

function of the detected errors, as suggested by Lee '068, in order to decrease for example the frame errors of voice data.

12. **Claims 7-9 and 26-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al., in views of LEE, and LAAKSO.

Regarding claim 7, the combination of Choi and Lee disclose the apparatus of claim 1, but the combination does not particularly disclose wherein one of the parameters comprises transmission power requirements for a base station transmitter, the transmission power requirements being derived from feedback from the communication devices.

However, Laakso teaches a method for traffic load control in a telecommunication network comprising the steps of setting a first reference load value for the load of a respective cell (abstract, lines 1-11); the method measures the parameter PrxTotal which is the total received power in the uplink measured on cell basis (Page 3, Table), and establishes an overload condition if the PrxTotal exceeds the overload threshold PrxThreshold (p.0071; p.0074). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to incorporate the feature of monitoring transmission power requirements for a base station transmitter, as suggested by Laakso, since such a modification would allow the base station to estimate and control the state of congestion of a communication system due to wireless communication devices.

Regarding claim 8, the combination of Choi, Lee, and Laakso disclose the apparatus of claim 7, in addition Laakso discloses wherein the transmission power requirements comprises transmission power requirements for a plurality of reverse power control (RPC) channels, each of the RPC channels being assigned to one of the communication devices (Page 3, Table; the

method measures the PrxTotal which is the total received power in the uplink, i.e. reverse channels). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of wherein the transmission power requirements comprises transmission power requirements for a plurality of reverse power control channels, as suggested by Laakso, since such a modification would allow the base station to ensure the stability of the network.

Regarding claim 9, the combination of Choi, Lee, and Laakso disclose the apparatus of claim 7, in addition Laakso discloses wherein the overload is detected as a result of the transmission power requirements exceeding a maximum transmission power capability of the base station transmitter (p.0123, lines 1-9). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of detecting an overload condition as a result of the transmission power requirements exceeding a maximum transmission power capability, as suggested by Laakso, because it is well known in the art that when the transmission power of a base station is determined to be too much (i.e., exceeding a maximum transmission capability), the system becomes unstable, indicating an overload condition.

Regarding claim 26, the combination of Choi and Lee disclose the base station of claim 21, in addition Choi discloses further comprising a transmitter (inherent in a base station BTS), but the combination of Choi and Lee does not particularly disclose wherein one of the monitored parameters is a function of the transmission power requirements for the transmitter, the processor being further configured to derive transmission power requirements from feedback from the communication devices.

However, Laakso teaches a method for traffic load control in a telecommunication network comprising the steps of setting a first reference load value for the load of a respective cell (abstract, lines 1-11); the method measures the parameter PrxTotal which is the total received power in the uplink measured on cell basis (Page 3, Table), and establishes an overload condition if the PrxTotal exceeds the overload threshold PrxThreshold (p.0071; p.0074). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of monitoring transmission power requirements for a base station transmitter, as suggested by Laakso, since such a modification would allow the base station to estimate and control the state of congestion of a communication system due to wireless communication devices.

Regarding claim 27, the combination of Choi, Lee, and Laakso disclose the base station of claim 26, in addition Laakso discloses wherein the transmission power requirements comprise transmission power requirements for a plurality of reverse power control (RPC) channels, each of the RPC channels being assigned to one of the communication devices (Page 3, Table; the method measures the PrxTotal which is the total received power in the uplink, i.e. reverse channels). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of wherein the transmission power requirements comprises transmission power requirements for a plurality of reverse power control channels, as suggested by Laakso, since such a modification would allow the base station to ensure the stability of the network.

Regarding claim 28, the combination of Choi, Lee, and Laakso disclose the base station of claim 26, in addition Laakso discloses wherein the overload is detected as a result of the

transmission power requirements exceeding a maximum transmission power capability of the base station transmitter (p.0123, lines 1-9). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the feature of detecting an overload condition as a result of the transmission power requirements exceeding a maximum transmission power capability, as suggested by Laakson, because when the transmission power is determined to be too much (i.e., exceeding a maximum transmission capability), the system becomes unstable, indicating an overload condition.

13. **Claims 12 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, and VOLFTSUN et al. (US 6,707,792 B1).

Regarding claim 12, the combination of Choi and Lee disclose the apparatus of claim 1, but the combination fails to particularly disclose comprising means for detecting a second degree of overload as a result of said one of the parameters crossing a second threshold.

However, Volftsun teaches a method and apparatus for reducing overload conditions of a node of a communication system, that establishes pairs of overload thresholds values and each overload threshold correspond to the current saturation level (abstract). The pair of thresholds corresponds to an upper and a lower overload level values and correspond to saturation conditions in the node (col.2, line 34 – col. 3, lines 1-7). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to incorporate means for detecting a second degree of overload level as a result of one of the parameters crossing a second threshold, as suggested by Volftsun, because a second threshold may correspond to an upper overload threshold value that indicates a saturation condition in the

base station which is an indication of overload that is higher than the overload resulting from crossing a lower overload threshold value.

Regarding claim 30, the combination of Choi and Lee disclose the base station of claim 21, but the combination fails to particularly disclose wherein the processor is further configured to detect a second degree overload as a result of the one of the parameters crossing a second threshold.

However, Volftsun teaches a method and apparatus for reducing overload conditions of a node of a communication system, it establishes pairs of overload thresholds values and each overload threshold correspond to the current saturation level (abstract). The pair of thresholds corresponds to an upper and a lower overload level values and correspond to saturation conditions in the node (col.2, line 34 – col. 3, lines 1-7). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of detecting a second degree of overload level as a result of one of the parameters crossing a second threshold, as suggested by Volftsun, because a second threshold may correspond to an upper overload threshold value that indicates a saturation condition in the base station which is an indication of overload that is higher than the overload resulting from crossing a lower overload threshold value.

14. **Claims 15 and 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al., in views of LEE, GANDHI et al., and LAAKSO.

Regarding claims 15 and 35, the combination of Choi and Lee disclose the apparatus (and base station) of claims 1 and 21, in addition Choi discloses wherein one of the parameters comprises loading on processing resources used for communication with the communication

devices (col. 3, lines 20-36; col. 4, lines 15-20; the systems periodically monitors the BTS call occupancy rate).

But, the combination of Choi and Lee does not particularly disclose wherein a second one of the parameters includes a receiver stability at the base station, wherein a third one of the parameters comprises base station transmission power requirements derived from feedback from the communication devices.

However, Gandhi teaches a base station monitoring the receiver stability (col. 3, line 22-col. 5, lines 1-13; the base station monitors a first performance indicators that includes rise from interference rise over background thermal noise (i.e., receiver stability parameter) that is comparing with a blocking threshold that represents a control overload benchmark and if the first performance indicator exceeds the blocking threshold, the base station rejects new call arrivals because the system is overloaded). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combination to include wherein one of the parameters comprises receiver stability at the base station, as suggested by Gandhi, since such a modification would allow the base station to facilitate meeting a desired level of signal quality or statistical reliability over a defined coverage area for the reverse link of currently active users.

And, Laakso teaches a base station monitoring transmission power requirements derived from feedback from the communication devices (abstract, lines 1-11; paragraphs [0071] and [0074]). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include the features of monitoring transmission power requirements for a base station transmitter, as suggested by Laakso, since such a

modification would allow the base station to estimate and control the state of congestion of a communication system due to wireless communication devices.

15. **Claims 16 and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, GANDHI et al., LAAKSO, and PADOVANI.

Regarding claims 16 and 36, the combination of Choi, Lee, Gandhi, and Laakso disclose the apparatus (and base station) of claims 15 and 35, but the combination does not particularly disclose wherein a fourth of the parameters comprises a number of the communication devices in communication with the base station. However, Padovani teaches that a simple means for determining reverse link loading is to simply count the number of active users in the base station (col.4, lines 32-34). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to modify the combination to include a parameter comprising of monitoring a number of the communication devices in communication with the base station, as suggested by Padovani, since such a modification would provide the base station with another parameter for determining a reverse link loading.

16. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE and BENDER.

Regarding claim 18, the combination of Choi and Lee disclose the apparatus as in claim 1, but the combination does not particularly disclose the control mechanisms comprising: means for determining idle users; and means for bumping service to idle users.

However, this overload control mechanism is well known in the art and Bender is evidence of the fact. Bender teaches a method for supervising connections with wireless access terminals and releasing the access terminals when they become idle for a predetermined period

of time (p.0036, lines 1-11). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination of Choi and Lee to include the overload control mechanism comprising means for determining idle users and means for bumping service to idle users, as suggested by Bender, since such a modification will allow the system to maximize the RF resources for use by other users.

17. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE, BENDER, KIM et al., and KATOH et al. (US 5,949,757).

Regarding claim 20, the combination of Choi, Lee, Bender, and Kim disclose the apparatus as in claim 19, but the combination fails to particularly disclose means for determining a first group of users having transferred a first amount of data; and means for bumping service to the first group of users. However, Katoh teaches a method for monitoring packet flow in a communication system, the system includes a connection group monitor means that monitors the flows of packets transferred over the connection group and checks whether the flow of packets (i.e., amount of data) exceeds a threshold and if the flow exceeds the threshold the monitor means discard the packets (i.e., bump service to the group) so congestion does not occur (col.2, lines 24-58). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination to include the control mechanism comprising determining a first group having transferred a first amount of data and bumping service to the first group, as suggested by Katoh, in order for the system to efficiently regulate the amount of data transmitted by a group of users so congestion does not occur.

18. **Claims 41 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over CHOI et al. in views of LEE and LIN et al. (US 5,917,806).

Regarding claims 41 and 42, the combination of Choi and Lee disclose the apparatus (and base station) of claims 1 and 21, but the combination does not particularly disclose means for detecting an early time period, wherein the early time period occurs before the overload is detected; and wherein the plurality of control mechanisms are also implemented during the early time period.

However, Lin teaches means for detecting an early time period, wherein the early time period occurs before the overload is detected (i.e., early warning of impending congestion) and implementing a plurality of control mechanisms during the early time period (Abstract; col. 1, lines 39-56; col. 3, lines 55-66; col. 4, lines 42-59; col. 5, lines 1-45; Lin teaches a radio communication system comprising a processing system (Fig. 2) that is programmed to detect an early warning of impending congestion (i.e., early time period before overload is detected) and takes action to relieve the impending congestion by doing at least one of (a) increasing output resources and (b) decreasing traffic rates (i.e., plurality of control mechanisms)). Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to modify the combination to include means for detecting an early time period that occurs before the overload is detected (i.e., early warning of impending congestion) and implementing a plurality of control mechanisms to reduce the load during the early time period, as suggested by Lin, since such a modification would provide the advantage of attacking potential congestion (i.e., overload) in a communication system as early as possible so that the system does not become unstable very often (col. 4, lines 42-59).

(10) Response to Argument

<u>A. Claims 1, 21, 22, 23, and 39</u>

With respect to claim 1, the Appellant argues:

1. The combination of Choi and Lee does not yield the claimed invention.

"Claim 1 recites a communication apparatus for a base station. The apparatus comprises a means for detecting various overloads caused on the base station, and a means for implementing a set of control mechanisms to reduce the load. Claim 1 also recites: "wherein the control mechanism used to reduce the load on the base station is selected based on a plurality of types and a degree of the overload on the base station; and wherein each type is associated with at least one of the parameters." (Emphasis added.)

With respect to the above emphasized features, the Examiner cites Choi for the selection based on a plurality of types feature, and cites Lee for the selection based on the degree of the overload. Claim 1 recites that "the control mechanism used to reduce the load on the base station is selected based on a plurality of types and a degree of the overload on the base station...."(Emphasis added). Applicants respectfully submit that the cited references do not teach or suggest this claimed subject matter.

First, the above claims are distinguished from Choi in several ways. For example, Choi does not disclose a plurality of control mechanisms, wherein the control mechanism used to reduce the load on the station is selected based on a plurality of types; and wherein each type is associated with at least one of the parameters. Instead, in Choi, the only one type of problem controlled is that of a call request overload.

In an Advisory Action dated December 12, 2008, the Examiner asserts that:

> *Choi's abstract discloses "allocating an overload control process according to the thresholds", the thresholds determine [sic] the type of overload in the system and the control process to perform to alleviate the overload (see col. 3, line 59-col. 4, lines 1-11). Furthermore, the overload type is determined based on measured parameters and the comparison with the thresholds (see col. 4, lines 15-21).*
>
> *Therefore, Choi teaches the limitations of a plurality of control mechanisms, wherein the control mechanism used to reduce the load on the station is selected based on a plurality of types; and wherein each type is associated with at least one of the parameters.*

December 12, 2008, Advisory Action, page 2. Applicants respectfully disagree.

Referencing the cited sections in Choi as well as FIG. 3, it is apparent that Choi only deals with call rejections when there is an overload condition. Specifically, Choi can reject various calls, whether they are incoming, outgoing, or handoff calls. See Choi, FIG. 3, and col. 3, line 59 to co. 4, line 21 (sections cited by Examiner). Choi does not handle a plurality of types such as those that may be caused due to lack of sufficient power, and rise over thermal condition, as recited, for example, in claim 45, but claimed in the rejected independent claims. In fact, Choi cites only one "overload detect value Y1". See Choi, col. 4, lines 22-52. This is clearly very different than the features disclosed in above claims. (See pages 7-8 of Appellant's arguments).

Examiner's Response:

The Examiner respectfully disagrees. Choi teaches a plurality of control mechanisms to reduce the load on the base station wherein a control mechanism is selected based on a plurality of types of the overload in the base station. For example, Choi teaches "allocating an overload control process according to the thresholds" (see abstract). The thresholds are overload thresholds and indicates the types of overload at the base station, such as overload of handoff request calls, overload of incoming and out-going calls, and overload of out-going calls (see Fig. 3; Col. 3, lines 20-36 and Col.3, lines 59- Col. 4, lines 1-6) and applies a control process accordingly.

For example, the handoff request call rejection point indicates that there is an overload of handoff call requests at the base station (i.e., 1st overload type) and the control process is to reject handoff request calls (Fig. 3, ST9), when the overload occurs when there is an incoming or out-going call request (i.e., 2nd overload type), the control process is to reject incoming and out-going calls (Fig. 3, ST10), etc. (see also, Col. 4, line 53-Col. 5, lines 1-16).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies *(i.e., Choi does not handle a plurality of types such as those that may be causes due to lack of sufficient power, and rise over thermal condition, as recited in claim 45 (See page 8, lines 11-18 of Appellant's arguments))* are not recited in the rejected independent claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181,26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, the combination of Choi, Lee, and Gandhi teaches this, see rejections for claim 45 in the previous office action.

In addition the Appellant basically argues that: Lee does not teach or suggest that "the control mechanism is selected based on the "type" of the overload on the base station as recited in claim 1." (See page 9, lines 13-22 of Appellant's arguments).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Examiner further submits that Lee was included (in combination with Choi) to teach the claim limitation of *"selecting a control mechanism to reduce the load on the base station based on the **degree** of the overload"* and not the type of the overload. As discussed above, Choi teaches *"selecting a control mechanism to reduce the load based on the **type** of the overload"*.

With respect to claims 21, 22, and 23, the Appellant present similar arguments to that stated about claim 1 (see page 9, line 25-page 10, lines 1-16 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

With respect to claim 39, the Appellant present similar arguments to that stated about claim 1 (see page 10, line 17-page 11, lines 1-3 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

2. One of ordinary skill would not have been realistically motivated to modify Choi to include Lee.

In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (see page 11, lines 4-8 of Appellant's arguments), it

must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

3. Even if the combination of Choi and Lee were proper, it would not yield the claimed invention.

In response to the arguments that "the combination would not yield the claimed invention" because the resulting combination of Choi and Lee would not be an apparatus wherein the control mechanism used to reduce the load on the station is selected based on a plurality of types, the resulting combination would only handle one type of overload, namely the call request (see page 11, second paragraph of Appellant's arguments); the Examiner respectfully disagrees.

Although, Choi deals reducing call overload in a system, Choi divides the call overload in different categories or overload points, these are: overload of handoff request calls, overload of incoming and out-going calls, and overload of out-going calls and comprise plurality of overload types (see Examiner's response about claim 1 above). Therefore, since Choi teaches an apparatus selecting a control mechanism to reduce the load based on a plurality of types and Lee teaches controlling overload based on the degree of overload, the combination would yield the claimed invention.

B. Claim 19

With respect to claim 19, the Appellant argues that claim 19 includes the same limitations as recited for claim 1 and is patentable over the same reasons stated about claim 1 (see page 11, lines 16-26 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

Furthermore, the Applicant argues that "claim 19 also recites that once an overload condition has been determined, the control mechanisms comprises means for determining idle users; means for bumping service to idle users; means for determining high data users; and means for bumping service to high data users and that these limitations are not shown nor suggested in Bender or Kim, either individually or combined".

However, these arguments are not persuasive because the Appellant just present a mere allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

C. Claims 6 and 23

With respect to claims 6 and 23, the Appellant argues that claims 6 and 23 includes the same limitations as recited for claim 1 and is patentable over the same reasons stated about claim 1 (see page 12, lines 1-10 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

Furthermore, the Appellant argues that "claims 6 and 23 also recite means for detecting a second degree overload as a result of the receiver stability estimate exceeding the threshold for a second period of time longer than a first period of time and that these limitations are not shown nor suggested in Ghandi or Gehi, either individually or combined.

However, these arguments are not persuasive because the Appellant just present a mere allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

D. Claim 32

With respect to claim 32, the Appellant argues that claim 32 includes the same limitations as recited for claim 1 and is patentable over the same reasons stated about claim 1 (see page 12, lines 11-20 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

Furthermore, the Appellant argues that "claim 32 also recites a second processor that, once an overload condition has been determined, second processor is further configured to reduce the load on the base station using a plurality of control mechanisms based on the type and degree of the overload on the base station and that these limitations are not shown nor suggested in Anderson".

However, these arguments are not persuasive because the Appellant just present a mere allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

E. Claim 34

With respect to claim 34, the Appellant argues that claim 34 includes the same limitations as recited for claim 1 and is patentable over the same reasons stated about claim 1 (see page 12, lines 21-28 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

Furthermore, the Appellant argues that "claim 34 also recites a second processor and detecting an overload condition based on the type of application running on the base station, and wherein each type is associated with at least one of the parameters and that these limitations are not shown nor suggested in Andersson or Jang, either individually or combined".

However, these arguments are not persuasive because the Appellant just present a mere allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

F. Claim 37

With respect to claim 37, the Appellant argues that claim 37 includes the same limitations as recited for claim 1 and is patentable over the same reasons stated about claim 1 (see page 13 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

Furthermore, the Appellant argues that "claim 37 also recites a second processor and detecting an overload condition based on receiver stability, function of transmission power requirements for the transmitter, and a third one of the parameters is a function of loading on the second processor and that these limitations are not shown nor suggested in Andersson, Gandhi or Laakso, either individually or combined".

However, these arguments are not persuasive because the Appellant just present a mere allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

G. Claim 38

With respect to claim 38, the Appellant argues that claim 37 is patentable over the same reasons stated about claim 37 (see page 13 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 37, above.

H. Claim 10

With respect to claim 10, the Appellant argues that claim 10 is patentable over the same reasons stated about claim 1 (see page 13 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

I. Claims 2, 3, 22, and 45-46

With respect to claims 2, 3, 22, and 45-46, the Appellant argues that claims 2, 3, 22, and 45-46 are patentable over the same reasons stated about claim 1 (see page 13 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

J. Claims 4, 5, 24, and 25

With respect to claims 4, 5, 24, and 25, the Appellant argues that claims 4, 5, 24, and 25 are patentable over the same reasons stated about claims 1 and 21 (see page 14 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claims 1 and 21, above.

K. Claims 7-9 and 26-28

With respect to claims 7-9 and 26-28, the Appellant argues that claims 7-9 and 26-28 are patentable over the same reasons stated about claims 1 and 21 (see page 14 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claims 1 and 21, above.

L. Claims 12 and 30

With respect to claims 12 and 30, the Appellant argues that claims 12 and 30 are patentable over the same reasons stated about claims 1 and 21 (see page 14 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claims 1 and 21, above.

M. Claims 15 and 35

With respect to claims 15 and 35, the Appellant argues that claims 15 and 35 are patentable over the same reasons stated about claims 1 and 21 (see page 14 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claims 1 and 21, above.

N. Claims 16 and 36

With respect to claims 16 and 36, the Appellant argues that claims 16 and 36 are patentable over the same reasons stated about claims 1 and 21 (see page 15 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claims 1 and 21, above.

O. Claim 18

With respect to claim 18, the Appellant argues that claim 18 is patentable over the same reasons stated about claim 1 (see page 15 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 1, above.

P. Claim 20

With respect to claim 20, the Appellant argues that claim 20 is patentable over the same reasons stated about claim 6 (see page 15 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claim 6, above.

O. Claims 41 and 42

With respect to claims 41 and 42, the Appellant argues that claims 41 and 42 are patentable over the same reasons stated about claims 1 and 21 (see page 15 of Appellant's arguments). However, these arguments have been addressed above, see Examiner's response for claims 1 and 21, above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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